increases salinity and alters trace metal mobilization. There is growing evidence that one of road salt's major additives (sodium ferrocyanide) breaks down to release hydrogen cyanide, which has been responsible for large fish kills. The United States is eliminating sodium ferrocyanide from forest fire retardants for this reason. Canada is on the verge of banning road salt (now considered toxic in Canada) and is considering discontinuing the use of sodium ferrocyanide. (E.E. Little and R.D. Calfee, The Effects of UVB Radiation on the Toxicity of Fire-Fighting Chemicals; and Committee on the Comparative Costs of Rock Salt and Calcium Magnesium Acetate (CMA) for Highway Deicing. 1991. Highway Deicing, Special Report 235, Transportation Research Board, National Research Council,Washington,DC).

The District's statutory objectives would be best served by seeking a commitment to have an exhaustive analysis of indirect, secondary, and cumulative impacts expected in an impact zone along the bluff and river valley ecosystems. A re-evaluation of Section 4.10.3 "Impacts to Wetlands" and Section 4.11.3 "Threatened and Endangered Species" should be of particular concern. The District expects the SFEIS will review specific cause and effect relationships of salt deposition concentrations and vegetation response. In addition, secondary impacts resulting from deteriorated plant communities should be evaluated with respect to biotic and abiotic functions and processes of ecosystems within the landscape. Ecosystem integrated functions and process analysis should be thoroughly studied and reviewed within the context of the salt study dispersion and deposition data. The District projects a much greater resource area upland and most predominately river valleys wetlands negatively affected and may result in serious degradation and environmental consequences to the landscape of Preserves.

Best Storm Water Management Practices Reviewed:

In section 4.10.2 "Impacts to Surface Waters" is ironically contrasting. Review of the Driscoll et al procedure for estimating stream pollutant concentrations associated with the roadway improvement states that; "The efficiency of stormwater management designs was demonstrated through analysis of representative roadway pollutants, lead, zinc, and copper. Detention basins placed in each watershed reduced these heavy metal concentrations in roadway runoff, and all streams achieved the general use water quality standards." When Black Partridge Creek is discussed, comment is made as to creek chloride total dissolved solid concentrations exceeding water quality standards during February 2000 flush discharges. Further it is discussed how the headwater tributaries within Black Partridge Creek continue to show the impact of land use changes associated with commercial and residential development.

DuPage County stormwater management designs and practices utilized in the headwater developments for Black Partridge Creek are considered by many as a very conservative model for managing storm water and should result in sound engineering performance regarding development applications. The cited *failed* example of Black Partridge Creek not meeting general water quality standards stems from the same storm water management and engineering technology that is modeled, designed, and planned for each watershed the project bisects. Expectation of the applied technology with respect to the project is stated to meet all general water quality standards for each watershed.

Personal District staff discussions with Martin Joyce, P.E of HDR Engineering, Inc. indicate that the first flush system designed for the project only accommodates a ½ inch rainfall event before overflow discharge occurs. Thus all events exceeding ½ inch rainfall appear to discharge fully upon the landscape and into the DesPlaines River. Although most storm water projects utilize acceptable engineering design to control flow volumes, water quality, contaminant loading, and resultant biotic impacts are not addressed beyond detention and flow thresholds.

4.10 No aggregate pollutant assessment was observed during the review of the DSFEIS when examined across all bisected watersheds and evaluated as a total project contributor to the DesPlaines River. Total pollutant discharge of project alternatives in comparison to a no build alternative would indicate the true impact of the project unto the DesPlaines River corridor macrosite. What is the total pollutant contribution of the Preferred Alternative project? How is this contribution evaluated in totality in the alternatives analysis?

We appreciate and respect the time, dedication, and effort by professionals at IDOT/ISTHA during this entire process. The District welcomes opportunities to meet with representatives to discuss Wood Ridge Forest Preserve impacts and management concerns prior to completion of the SFEIS. We look forward to the SFEIS incorporating and integrating a landscape perspective assessment of all impacts throughout the projected salt dispersion and deposition zone.

Respectfully,

Robert D. Gooch
Executive Director
DuPage County Forest Preserve District

cc: Robert Mork, Atty.
Dan Griffin, Director of Operations
John Oldenburg, Manager of Grounds and Resources

Literature Review

Forman, R. T. T. and L. F. Alexander. 1998. Roads and their major ecological effects. Annual Review of Ecology and Systematics. 29:207-231.

From pages 11 and 12

Sodium chloride (NaCL) is toxic to many species of plants, fish, and other aquatic organisms.

Calcium magnesium (CMA) is a more effective deicer, less corrosive, less mobile in soil, biodegradable, and less toxic to aquatic organisms.

Sodium accumulation in soils, mainly within 5 m of a road, alters soil structure, which affects plant growth (84). Road salt has facilitated the spread of three coastal exotic plants as much as 150 km in The Netherlands (1).

Deicing agents tend to increase the mobility of chemical elements in soil, such as heavy metals (by NaCl) and Na, Cl, Ca, and Mg (by CMA) (4). This process facilitates contamination of groundwater, aquifers, and streams. Because of dilution, the chemical effects of road runoff on surface water ecosystems may be primarily confined to small streams, particularly where they run adjacent to roads (36, 84).

Trombulak, S.C. and C. A. Frissell. 2000. Review of ecological effects of roads on terrestrial and aquatic communities. Conservation Biology. 14(1): 18-30.

See page 23

Forman, R. T.T. and R. D. Deblinger. 2000. The ecological road-effect zone of a Massachusetts (U.S.A.) suburban highway. Conservation Biology, 14(1): 36-40.

See pages 39-40

Salt, which moves in groundwater through porous glacial till and reaches a shallow pool or pond, can be expected to cause elevated pool salinity and affect sensitive species, especially in spring.

Rusek, J. and V. G. Marshall. 2000. Impacts of airborne pollutants on soil fauna. Annual Review of Ecology and Systematics. 29: 207-231.

See abstract for direct and indirect toxic effects and trickle down to ecosystem.

Nash, C.M. and Cotton, M. 1997. Wetland Mitigation: An Early Effort. Public Roads Online. http://www.tfhrc.gov/pubrds/pr97-12/p51.htm

Apfelbaum, S. I. 1991. Evaluation of the Condition and potential for Restoration Success in the Mitigation Wetlands Created by the Illinois State Toll Highway Authority. Final Report. Applied Ecological Services, Inc., Brodhead, Wisconsin.

See pages 4 and 132.

Cites an unpublished study indicating…"High levels of road contaminants including deicing salts…cause a significant zone of biological deterioration in wetlands adjacent to highways. Significant depression of biological diversity of emergent and submerged rooted aquatic plants, invertebrates and fishes and other aquatic vertebrates (including waterfowl)…". (Ludwig, Ludwig and Apfelbaum, unpublished data).

E.E. Little and R.D. Calfee. 1999? The Effects of UVB Radiation on the Toxicity of Fire-Fighting Chemicals. U.S. Geological Survey, Columbia Environmental Research Center, Columbia, MO.

National Research Council. 1991 Highway deicing: Comparing salt and calcium magnesium acetate (CMA). Special Report, 235. Transportation Research Board, National Research Council, Washington, D.C.

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